What is claimed is:

1. A gas control system that controls energizing an electric resistance igniter from a power source, said control system comprising:

a control device being configured and arranged so as to control operation of the electric resistance igniter;

wherein the control device is configured and arranged so as to warm-up the electric resistance igniter to temperature at or above an ignition temperature for a gas being combusted; and

wherein the control device also is configured and arranged so that following successful ignition of the gas, operation of the electric resistance igniter is controlled so the electric resistance igniter is at a temperature less than the gas ignition temperature and so the electric resistance igniter can be re-heated so as to re-ignite the gas within a desired re-ignition time period.

2. The gas control system of claim 1, wherein the gas control system further controls operation of one or more gas control valves, which valves control the flow of gas for combustion, and wherein the control device is configured and arranged so as to open the one or more gas valves after the control device determines that the electric resistance igniter is heated to a temperature at least equal to the gas ignition temperature.

3. The gas control system of claim 1, wherein the control device is configured and arranged so as to selectively control energization of the electric resistance igniter following successful ignition of the gas, where the electric resistance heater is selectively energized so that the electric resistance igniter is maintained at a temperature that is less than gas ignition temperature and which is established such that a time required to reheat the electric resistance igniter from the temperature less than the gas ignition temperature to a minimum temperature required for ignition of the gas, is less than a desired time period for re-ignition.

4. The gas control system of claim 3, wherein the control device includes:

a switching mechanism operably connected between the electric resistance igniter and the power source;

a micro-controller and an applications program for execution in the micro-controller; and

wherein the applications program includes instructions and criteria for

outputting control signals to the switching mechanism to selectively control voltage being applied to the electric resistance igniter,

outputting control signals to the switching mechanism to heat the electric resistance igniter to the gas ignition temperature, and

outputting control signals to the switching mechanism, following successful ignition of the gas, to maintain the electric resistance igniter at a temperature less than the gas ignition temperature.

5. The gas control system of claim 4, wherein the applications program further includes instructions and criteria for:

heating the electric resistance igniter to the temperature that is set so that a time required to reheat the electric resistance igniter from the temperature that is set to a minimum temperature required for ignition of the gas, is within than a desired time period for re-ignition.

6. A gas control system that controls energizing an electric resistance igniter from a power source and that controls operation of one or more gas control valves, which valves control the flow of gas for combustion, said gas control system comprising:

a control device being operably coupled between the electric resistance igniter and the power source and being operably connected to the one or more gas valves;

wherein the control device is configured and arranged to selectively apply a voltage to the electric resistance igniter responsive to an input signal calling for heat; and

wherein the control device is configured and arranged:

so the electric resistance igniter is heated by the selectively applied voltage so as to be at a temperature at or above a temperature for igniting the gas, a gas ignition temperature,

such that upon determining that the electric resistance igniter has been heated to the gas ignition temperature, the one or more gas valves are opened, and

such that upon determining that the gas has been successfully ignited, the voltage being applied to the electric resistance igniter is controlled so as to maintain the electric resistance igniter at an operational temperature that is less than the gas ignition temperature.

7. The gas control device of claim 6, wherein the control device is configured and arranged so the voltage being applied to the electric resistance igniter after determining that the gas has been successfully ignited is controlled so that the electric resistance igniter is at a temperature set so that a time required to reheat the electric resistance igniter from that temperature to a minimum temperature required for ignition of the gas, is within than a desired time period for re-ignition.

8. An ignition system comprising:

a control device that can control operation of an electric resistance igniter;

wherein the control device is configured to (i) heat the igniter to temperature at or above an ignition temperature for a gas being combusted; and (ii) following successful ignition of the gas, to control operation of the igniter so the igniter is at a temperature less than the gas ignition temperature and so the electric resistance igniter can be re-heated so as to re-ignite the gas within a desired re-ignition time period.

9. The ignition system of claim 8 wherein an electrical resistance igniter is operably connected to the control device.

10. The ignition system of claim 9 wherein the electrical resistance igniter is in electrical communication with the control device.

11. The ignition system of claim 8 wherein the igniter is a sintered ceramic igniter.

12. The ignition system of claim 8 wherein following gas ignition, the igniter is maintained at a temperature less than the gas ignition temperature but greater than ambient temperature.

13. The ignition system of claim 8 wherein the desired re-ignition time period is about four seconds or less.